

معاونت پژوهش، برنامه‌ریزی و سنجش مهارت

دفتر پژوهش، طرح و برنامه‌ریزی درسی

## استاندارد آموزش شایستگی

# Server Virtualization with Windows Server Hyper-V and System Center

## گروه شغلی

## فناوری اطلاعات

کد ملی آموزش شایستگی

۲	۵	۱	۲	۴	۰	۵	۳	۱	۸	۷	۰	۰	۴	۱
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Ministry of cooperatives  
Labour and Social Welfare



Iran Technical and Vocational  
Training Organization

Deputy of training  
Plan and curriculums office

# Competency Training standard

## Title

**Server Virtualization with Windows Server  
Hyper-V and System Center**

## Occupational group

**Information Technology (IT)**

International code

**2523-53-111-1**

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Control of board on content compilation and accreditation: Plan and curriculums office

**National code: 2523-53-111-1**

**Member of Specialized commission IT Curriculum development:**

- Ali Mosavi: Director Manager of Iran TVTO Curriculum Development Office
- Hassan Solimany: Member of Iran TVTO IT Curriculum Development
- Sarang Ghorbanian: Member of Iran TVTO IT Curriculum Development
- Dariush Esmaeili: Member of Iran TVTO IT Curriculum Development
- Morteza Mohammadian Dehkordi: Member of Iran TVTO IT Curriculum Development
- Shahram Shokofian: Manager of Iran TVTO IT Curriculum Development

**Cooperator Specialized organizations for compiling the training standard:**

- Chaharmahal and Bakhtiari Technical and Vocational Training Organization
- Sharekord Center Technical and Vocational Training Organization
- Ardal Center Technical and Vocational Training Organization

**Revision Process:**

- Scientific content
- According to market
- Equipment
- Tools

Plan & Curriculum Office

97, Nosrat Avenue –Tehran, Iran

Tel:+98-21-66569900-9

Fax: +98-21-66944117

E-mail:Barnamehdarci@yahoo.com

	Name & Family name	Academic document	field	Job & post	Relevant experiences	Add & Tel & Email
1	Marzieh Sadeghi	M. SC	Network engineer	Computer Coach	Technical and Vocational Training Organization	Charmal & Bakhtiari Blvd: enghelab 09131815420
2	Davood sadeghi	M. SC	Software engineer	Network expert	Shahrekord Unit Azad University	Charmal & Bakhtiari 09131012348
3	Morteza Mohammadian Dehkordi	M. SC	Electronics Engineer	Education expert	Technical and Vocational Training Organization	Charmal & Bakhtiari Blvd: enghelab 09131812350
4	Navid Zamanian	B. SC	Software engineer	Computer Coach	Technical and Vocational Training Organization	Charmal & Bakhtiari Blvd: enghelab 09131815420
5	Iman Mokhtarifard	M. SC	Software engineer	Research Assistant	Jihad daneshgahi	No17 Shariati st Charmal & Bakhtiari 09133801588
6	Mohammad Fayazi	M. SC	Software engineer	education expert	Technical and Vocational Training Organization	North Khorasan Shirvan Boulevard skills 09106768490
7	Mohammad moradi	B. SC	Software engineer	Education expert	Technical and Vocational Training Organization	Charmal & Bakhtiari Blvd: enghelab 09131838255

## **Definitions:**

### **Job standard:**

The characteristics ' required competencies and abilities for Efficient Performance in work environment is called "the Job standard", and sometimes “The Occupational standard”

### **Training standard:**

The Training Map for achieving the Job’s subset Competencies.

### **Job title:**

Is a set of Tasks and Abilities which is expected from an employed person in the defined level

### **Job description:**

A statement covering the most important elements of a job, namely the position or title of the job, the duties, job’s relation with other jobs in a occupational field, the responsibilities, workplace conditions and required performance standards.

### **Course duration:**

The minimum of time which is required to achieve the training objects.

### **Admission requirements:**

The minimum of competencies and abilities which are obligatory for a potential admission.

### **Evaluation:**

The process of collecting evidence and judgment about whether a competency is achieved or not.

Include: written examination, practical examination

### **Required Qualifications for Trainers:**

The minimum of Trainer’s technical and vocational abilities which the trainer is required to have.

### **Competency:**

The ability of efficient performing a duty in a variety of workplaces conditions

Knowledge:

The minimum set of facts and mental capacities which is necessary for achieving a competency. This can include science, (Mathematics, physics, chemistry or biology), technology or technical.

### **Skill:**

The minimum coordination between mind and body for achieving an ability or competency. It normally applied to practical skills.

### **Attitude:**

A set of emotional behaviors required for achieving a competency and can have non-technical skills and occupational ethics.

### **Safety:**

The cases which doing or not doing something can cause harm or accident

### **Environmental Consideration:**

A set of consideration about the act which should be done to minimize the environmental damage or pollution.

**competency title:****Server Virtualization with Windows Server Hyper-V and System Center****competency description:**

Learn how to configure, manage, and maintain Windows Server 2012 R2 Hyper-V and System Center 2012 R2 Virtual Machine Manager including networking and storage services. Also learn how to configure key Microsoft Server Virtualization features such as Generation 2 Virtual Machines, Replication Extension, Online Export, Cross-Version Live Migration, Online VHDX Resizing, Live Migration Performance tuning as well as Dynamic Virtual Switch Load Balancing and virtual Receive Side Scaling (vRSS).

**admission requirements:**

minimum degree of education: Post first year of high school

minimum physical and mental ability:-

Prerequisite skills: network+ certification

**Course duration:**

*Course duration: 32 hours*

*-Theoretical :10 Hours*

*-Practical :22 Hours*

*-Apprenticeship: ... Hours*

*-Project: ... Hours*

**Evaluation :(%)**

Configure Hyper-v (35-40%)

Configure and manage virtual machine high availability (35-40%)

Implement a server virtualization infrastructure (35-40%)

Monitor and maintain a server virtualization infrastructure (15-20%)

**Required Qualifications for Trainers:**

Server Virtualization with Windows Server Hyper-V and System Center

degree holders with 2 years experiences

<b>competency training standard tasks</b>	
1	Evaluating the Environment for Virtualization
2	Installing and Configuring the Hyper-V Server Role
3	Creating and Managing Virtual Hard Disks, Virtual Machines, and Checkpoints
4	Creating and Configuring Virtual Machine Networks
5	Virtual Machine Movement and Hyper-V Replica
6	Implementing Failover Clustering with Hyper-V
7	Installing and Configuring System Center 2012 R2 Virtual Machine Manager
8	Managing the Networking and Storage Infrastructure in System Center 2012 R2 Virtual Machine Manager
9	Creating and Managing Virtual Machines by Using Microsoft System Center 2012 R2 Virtual Machine Manager
10	Configuring and Managing the System Center 2012 R2 Virtual Machine
11	Managing Clouds in System Center 2012 R2 Virtual Machine Manager
12	Managing Services in System Center 2012 R2 Virtual Machine Manager and App Controller
13	Protecting and Monitoring Virtualization Infrastructure

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Training standard  
Contents analysis form

<b>Title:</b> <b>Evaluating the Environment for Virtualization</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipments ,tools, materials ,books
<b>Knowledge and Skill:</b> -Overview of Microsoft Virtualization -Overview of System Center 2012 R2 Components -Evaluating Current Environment for Virtualization -Extending Virtualization to the Cloud	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Installing and Configuring the Hyper-V Server Role</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipments ,tools, materials ,books
<b>Knowledge and Skill:</b> -Installing the Hyper-V Server Role -Managing Hyper-V -Configuring Hyper-V Settings -Hyper-V Host Storage and Networking	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

Training standard

Contents analysis form

<b>Title:</b> Creating and Managing Virtual Hard Disks, Virtual Machines, and Checkpoints	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipments ,tools, materials ,books
<b>Knowledge and Skill:</b> -Creating and Configuring Virtual Hard Disks -Creating and Configuring Virtual Machines -Installing and Importing Virtual Machines -Managing Virtual Machine Checkpoints -Monitoring Hyper-V -Designing and Managing Virtual Machines	Determined by the instructor			From <b>Microsoft</b>
Attitude: Speed and accuracy in doing the right thing				
Health & Safety: Compliance with safety protection in the workplace				
Environmental Consideration: Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> Creating and Configuring Virtual Machine Networks	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipments ,tools, materials ,books
<b>Knowledge and Skill:</b>  -Creating and Using Hyper-V Virtual Switches -Advanced Hyper-V Networking Features -Configuring and Using Hyper-V Network Virtualization	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Virtual Machine Movement and Hyper-V Replica</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Providing High Availability and Redundancy for Virtualization -Implementing Virtual Machine Movement -Implementing and Managing Hyper-V Replica	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Implementing Failover Clustering with Hyper-V</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Overview of Failover Clustering -Configuring and Using Shared Storage -Implementing and Managing Failover Clustering with Hyper-V	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Installing and Configuring System Center 2012 R2 Virtual Machine Manager</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Integrating System Center and Server Virtualization -Overview of System Center 2012 Virtual Machine Manager -Installing System Center 2012 R2 Virtual Machine Manager -Adding Hosts and Managing Host Groups	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

Training standard  
Contents analysis form

<b>Title:</b> <b>Managing the Networking and Storage Infrastructure in System Center 2012 R2 Virtual Machine Manager</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Managing Networking Infrastructure -Managing Storage Infrastructure -Managing Infrastructure Updates	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard

Contents analysis form

<b>Title:</b> <b>Creating and Managing Virtual Machines by Using Microsoft System Center 2012 R2 Virtual Machine Manager</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b>  -Virtual Machine Management Tasks in VMM -Creating, Cloning, and Converting Virtual Machines -Overview of Virtual Machine Updating	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Configuring and Managing the System Center 2012 R2 Virtual Machine</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b>  -Overview of the Virtual Machine Manager Library -Working With Profiles and Templates	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Managing Clouds in System Center 2012 R2</b> <b>Virtual Machine Manager</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
Knowledge ,skill ,attitude ,safety, Environmental Consideration				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b>  -Introduction to Clouds -Creating and Managing a Cloud -Working With User Roles in Virtual Machine Manager	Determined by the instructor			<b>From Microsoft</b>
Attitude: Speed and accuracy in doing the right thing				
Health & Safety: Compliance with safety protection in the workplace				
Environmental Consideration: Compliance with environmental protection				

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Training standard

Contents analysis form

<b>Title:</b> <b>Managing Services in System Center 2012 R2 Virtual Machine Manager and App Controller</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Understanding Services in System Center 2012 R2 Virtual Machine Manager -Creating and Managing Services in VMM -Using System Center 2012 R2 App Controller	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Training standard  
Contents analysis form

<b>Title:</b> <b>Protecting and Monitoring Virtualization Infrastructure</b>	time			
	theoretical	practical	total	
	Determined by the instructor			
<b>Knowledge ,skill ,attitude ,safety, Environmental Consideration</b>				Equipment's ,tools, materials ,books
<b>Knowledge and Skill:</b> -Overview of Backup and Restore Options for Virtual Machines -Protecting Virtualization Infrastructure by Using Data Protection Manager -Using System Center Operations Manager for -Monitoring and Reporting -Integrating Virtual Machine Manager with Operations Manager	Determined by the instructor			<b>From Microsoft</b>
<b>Attitude:</b> Speed and accuracy in doing the right thing				
<b>Health &amp; Safety:</b> Compliance with safety protection in the workplace				
<b>Environmental Consideration:</b> Compliance with environmental protection				

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Equipment & Tools & Materials & Resources (books, site, software...) form

\*Required quantity for each 15 Trainees

**From: Microsoft**



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